

Year I

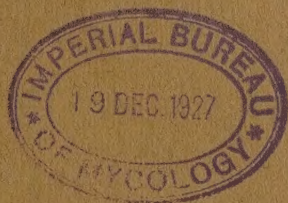
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INTERNATIONAL BULLETIN

OF

PLANT PROTECTION

DISCOVERIES AND CURRENT EVENTS IN WORLD PHYTOPATHOLOGY

Algeria: *Polychrosis botrana* in the Mitidja Plain (1).

Vineyards of the Mitidja plain (Department of Algiers) have this year experienced a violent attack of *Polychrosis botrana* which has caused serious loss.

The warning Stations, set up by government arrangement, notified viticulturists of the appearance of large swarms of moths (April 6-June 11-August 6) and subsequently as to the proper date for control measures. The Station of the Maison-Carrée Agricultural Institute prepared 45 traps containing fermenting molasses thereby capturing:

104	moths of the 1st generation.
608	» » 2nd »
4632	» » » »

The damage done by *Polychrosis* has stimulated research and a large number of investigators are trying the find insecticidal products of greater efficacy than arsenical salts or nicotine, or whose application is easier. Some of these products although hitherto not entirely satisfactory present considerable interest. An apparatus for the capture of the moths has also been tried recently with fair success.

Belgian Congo: Diseases and Pests new to the Colony (2).

Algae: *Cephaleuros parasiticus* Karst. (syn. *C. virescens* Kunze) on *Lophira* (native species) at Ikaturaka (Equatorial Province). New host-plant and new locality.

The presence of this parasite on the under surface of the leaves of this *Lophira* gives rise to very characteristic orange spots.

This alga has already been found on twenty or so cultivated plants introduced into Belgian Congo as well as on a native *Trichoscypha*.

(1) Communication from the official correspondent to the Institute, M. M. DELASSUS, Plant Protection Inspector of the Government General of Algeria at Algiers.

(2) Communication from the official correspondent to the Institute, M. J. GHESQUIÈRE, Entomologist at Stanleyville.

Fungi: *Erysiphe Polygoni* D. C., on *Indigofera* sp. at Lusambo (Sankuru).

Sphaerella Coffeae (Noack) Sacc., on *Coffea myrtifolia* at Stanleyville.

Venturia sp. uncertain, on *Elaeis guineensis* at Le Kasai.

Didymosphaeria sp. uncertain, on *Panicum maximum* at Lusambo (Sankuru).

Leptosphaeria sp. uncertain, on *Cynodon Dactylon* at Le Sankuru.

Uredo Gossypii Lag., on *Gossypium barbadense* subspontaneous at Bumba and Stanleyville (Eastern Province). It has not yet been noticed on cultivated cotton plants.

Phyllosticta sp. uncertain, on *Voandzea subterranea* at Le Sankuru.

Cercospora sp. uncertain, on *Bidens pilosa* at Lodja (Sankuru).

Cladosporium fulvum Cook, on *Solanum Lycopersicum* at Le Sankuru.

Brachysporium sp. uncertain, on *Calamus* sp. in the Lonkala Forest (Sankuru).

Insects: *Tragocephala glaucosignata* Aur. This new species has been found on cacao trees at N'Gazi (Eastern Province). The larva lives in the stems of the cacao and of *Sterculia tragacantha* (native species).

Alcidis depressipennis Hust. The larva of this weevil lives in the nodes of the branches and stems of the coffee tree. Its presence gives rise to more or less globular cecidia and produces arrested growth of the internodes of those plants which are badly affected. The weevil itself gnaws the berries¹ and the young shoots.

Italy: Phytopathological Notes (1).

Numerous serious attacks of *Galerucella luteola* on elms were notified in September 1927, both in Northern and Central Italy.

Notices received from the "R. Osservatorio di Fitopatologia", Turin show that many places in Piedmont have suffered from severe attacks of *Puccinia Pruni-spinosae* on peaches, and of *Gymnosporangium tremelloides* on apples.

Serious damage has also been caused in Piedmont by the attacks of *Clasterosporium carpophilum*.

The control of *Tingis pyri* by means of an extract of quassia wood, which is now specially prepared by a chemical factory, has given excellent results.

Holland: Blue Coloration in Potato Tubers (2).

By this is meant the production of large or small blueish-grey spots on the tubers.

These spots are generally superficial, appearing just below the epidermis, though in serious cases the whole tuber may be affected; it then shows

(1) Communication from the "R. Stazione di Patologia vegetale" of Rome, official correspondent to the Institute.

(2) Communication from the State Phytopathological Service at Wageningen, official correspondent to the Institute.

a greyish flesh. The character of this affection is always more intense near the tuber's point of connection.

The blue formation is not due to a parasite, but is caused by pressure on the cells. The amount of the plant's available potash has considerable influence on its occurrence. Tubers from a soil poor in potash are much less resistant to jolts and pressure than those from a soil rich in that element and often show blue spots after digging and transport. Moreover soft potatoes are more easily affected than hard.

The blue spots can only appear in the presence of oxygen. If, after shaking, the tubers are removed from the reach of oxygen, e. g. by coating them with a layer of paraffin, the blue spots do not form. On the other hand they form directly the oxygen can act.

The use of so affected tubers as " seed " has no effect at all on the incidence of this phenomenon in the crop, which proves that the affection is not transmitted by the " seed ".

The following precautions should be taken to prevent this disease :

- (a) sufficient potassic manuring ;
- (b) the avoidance of unnecessary jolting of tubers, especially if they are already soft in spring ;
- (c) the avoidance as far as possible of the sprouting of potatoes during their storage in winter.

VARIOUS QUESTIONS RELATING TO PLANT PROTECTION IN THE DIFFERENT COUNTRIES

French Equatorial Africa : Cotton Pests and Diseases noted recently in the Chari Basin (1).

There is no existing study, to our knowledge, of the different cotton parasites in the basin of the Chari. Those mentioned below are not new, but are in our opinion worth noting. Some of them have quickly become of considerable importance since the attempted large scale production of cotton. Their presence may be a danger to the neighbouring Colonies of Nigeria and Belgian Congo.

(1) Communication from the official correspondent to the Institute, M. NÈME, Ingénieur d'Agronomie coloniale, Assistant Engineer of agricultural operations at Bangui (Oubangui-Chari).

I. LEPIDOPTERA. — *Sylepta derogata*, Fab. (Fam. *Pyralidae*) is one of the two worst parasites in these districts; it only attacks crops of American cotton ("Triumph", "Big Boll"). Some plantations were nearly destroyed in a few days. Its development is favoured by shade.

Control methods used. — Destruction of all the trees on the plantations, collection of leaves by children. The regular use of this method has given excellent results.

A parallel measure: selection of a resistant native cotton plant.

HEMIPTERA. — (1) *Nezara viridula*, L. (Fam. *Pentatomidae*).

(2) *Anoplocnemis curvipes*, Fab. (Fam. *Coreidae*).

These two Hemiptera are not numerous, and the damage done by them is practically insignificant.

(3) *Oxycarenus hyalinipennis*, Costa (Fam. *Lygaeidae*).

(4) *Dysdercus supersticiosus*, Fab. (Fam. *Pyrrhocoridae*).

These two Hemiptera which do very similar damage, piercing the young shoots, the bolls — thus producing premature opening — and the seed — producing a remarkable decrease in percentage of germination — have proved to be, with *Sylepta derogata*, the worst pests of our crops. In many places the loss may amount to 50 %. The loss in value is even greater, the quality of the product deteriorating by reason of spotting and the large proportion of short fibres, due to these attacks.

It should be noted that never more than one of the above species is found in abundance in the same district. The dividing line runs somewhere about 7° N.

O. hyalinipennis is more abundant in the direction of Lake Chad, while *D. supersticiosus* is prevalent in the southern part of the country as far as Oubangui. Their spread is favoured by weeds.

Control methods. — Frequent weeding, increase of spaces in the crops, collection of insects.

The weekly collection of cotton bolls diminishes the importance of the damage to the seeds.

The growth of maize as a trap crop has given remarkable results.

(5) *Aphis gossypii*, Glov.

ACARINA. — *Eriophyes gossypii*, Bks.

II. "Mosaic". This disease is very rare. Boll rot, fairly frequent. False anthracnose follows the attacks of Hemiptera during periods of great humidity.

Scotland: Notes on Plant Diseases and Pests (1).

I. The following diseases and pests were especially prevalent in the year 1925:—

(1) Communication from the Board of Agriculture for Scotland, Edinburgh, official correspondent to the Institute.

(1) Raspberry canker (*Nectria rubi*), which is believed to have appeared for the first time in Great Britain, and which was prevalent in the north of Scotland.

(2) A disease of strawberries (first noted in 1920), which caused much loss in the strawberry-growing district of Lanarkshire, and which is believed to be due to a fungus of the species *Pythium*. Further investigation is being carried on.

(3) The moth *Argyresithia conjugella*, which appeared for the first time in Scotland and caused severe loss among apples.

(4) *Psila rosae* (not new), which caused damage to parsley seedlings in the Lothians.

II. No new disease or pest appears to have been recorded in 1926. The following fungus diseases were prevalent:—

Phytophthora cryptogea on tomatoes and herbaceous plants;

Plowrightia ribesia on red and black currants; *Uromyces betae* on beetroot and sugar beet; *Puccinia Pringsheimiana* on gooseberries — almost epidemic;

Cronartium ribicola on black currants and white or Weymouth pine; *Phoma betae* on seedling beet;

*Bacillus lathyr*i on broad and field beans.

West Indies : Notes on the Prevalence of Insect Pests, June 1927 (1)

Sugar-cane. — The Froghopper of sugar cane (*Tomaspsis saccharina*) as a serious pest is confined to Trinidad. The very unusual amount of rain which has fallen in the first six months of this year (this period usually includes the dry season), appears materially to have altered the normal course of procedure in the development of the Froghopper. It is usual for the Froghopper to appear in numbers at about this time, in what is known as the first brood, but this year there has been a continuous breeding with no dry period sufficient to cause a hibernation. Froghoppers have been present in many cane fields throughout the season, although not in great abundance, and without causing characteristic blighting to any noticeable extent. The development of this insect as the season advances will be watched with a good deal of interest.

As a result of the experiments carried out last season, Cyanogas (Calcium cyanide) is being extensively used for the destruction of nymphs, being applied as a dust at the base of the cane plants.

Professor HARDY has stated that it appears certain that certain conditions of soil acidity in the cane fields are associated with severity of attacks by Froghopper, and severity of blighting of the sugar cane leaves.

Cotton. — The unusually severe attacks of the Cotton leaf ca-

(1) Communication from the official correspondent to the Institute, Prof. H. A. BALLOU, Commissioner of Agriculture, Imperial College of Tropical Agriculture, Trinidad.

terpillar (*Alabama argillacea*) throughout the West Indies in the 1926 season caused cotton planters to look forward with considerable apprehension to attacks of similar severity in 1927. Up to the present time reports received indicate that although the caterpillars appeared in the fields as early as May, no severe attacks had been experienced up to the end of June.

Appearances of pink bollworm (*Pectinophora gossypiella*) were recorded during June, but the insects were few.

Rumania : Experiment Trials on Formol Treatment of Sugar Beet Seed (1).

The disease known as bacterial gummosis of beet, which is produced, as is known, by an association of bacteria, appeared in the summer of 1924 in sugar beet crops in Rumania, especially in the valley of the Danube. The losses incurred by beet growers and sugar manufacturers were, for the year in question, from 60-70 % rising in some places as high as 100 %.

Attempts made to cultivate these bacteria taken directly from affected plants show that the disease is produced by a coccus. For a thorough investigation of the disease field trials have been made. These were started in the summer of 1924 and were made on 14 plots, each 15 metres square. The plots were worked to a depth of 25 cm. and were then sown with sugar beet seed provided by five sugar beet seed farms. For each lot of seed there were two plots. In one of the plots the seed was treated first with a solution of commercial formol at 0.025 % strength, the seed being immersed for an hour. It was then put in the sun to dry but sown while still wet. The sowing was done on the same day and under the same conditions on all the plots, the distance between the rows being 35 cm. and the lines sown running north and south. Field observations have shown that the formol treated seed germinates at once while the untreated seed germinates 2-4 days later. The plants in the plots sown with treated seed were more vigorous during the whole of their growth, their development was obviously better, and their appearance was finer. They produced a rosette of larger and more crinkled leaves of a deeper green.

In summer the beets were damaged by hail, especially those on the treated plots, owing to the fact that their leaves being greater offered a larger surface to the hail. However, a later observation showed that these plants picked up and revived more quickly than the others growing in the plots sown with non-treated seed. During harvest, each root was weighed separately and the roots of each plot were also weighed. A series of variations in the weights of the roots on each plot was thus obtained, from which the following figures were calculated :—

(1) Communication from the official correspondent to the Institute, Professor Tr. SĂVULESCU, in collaboration with Mr. C. SANDU (Phytopathological Laboratory of the Agricultural College at Herestrau-Bucharest).

Plot —	No. of specimens analysed	Total Weight kg.	M.	T.	em.	Note
1	128	64.67	518.75	328	29.	The letter F beside the number of the plot indicates that it has been treated. M = the average weight of a specimen in grammes. T = standard variation. em = average error.
1 F	131	56.62	634	290	25.35	
2	131	70.71	557.6	335	29.28	
2 F	118	78.13	607.6	271	24.91	
3	121	58.8	530.1	227	25.18	
3 F	136	82.95	560.3	291	25.08	
4	132	68.77	524.2	281	24.62	
4 F	134	98.17	700	433	37.65	
5	124	77	640.4	312	27.58	
5	129	95.87	763.3	367	32.33	
6	132	69.74	511.66	309	26.91	
6 F	146	83.99	562.3	296	24.53	
7	129	65.69	492.9	261	23.25	
7 F	131	75.95	564.1	303	26.48	

It will be seen from the data of this general table that the plots sown with formol-treated seed give a considerably increased yield. Chemical analysis also shows an increased sugar content of the roots from treated seed. As all the plots were treated in the same way during their growth period and as the only variable factor was the formol treatment, this treatment may be definitely considered as the one and only factor producing difference in results. Formol brought into the soil by the seeds acts as a disinfectant, bringing about a partial disinfection only by reason of its weak concentration.

LEGISLATIVE AND ADMINISTRATIVE
MEASURES

England. — The Ministry of Agriculture and Fisheries has been informed that the Committee of Agriculture of the Island of Jersey has prohibited the importation into the island of any potatoes of varieties which are susceptible to Wart Disease.

Consignments of immune varieties must be accompanied, as before, by a sworn statement by the shipper, indicating the farm where the potatoes were grown, and declaring that no case of Wart Disease has occurred on the farm, and this statement must be supported by an official certificate that no case of Wart Disease has occurred during the past three years within a distance of at least 500 yards. Application for the issue of this certificate in connection with the export to Jersey of potatoes grown in England should be made to the Ministry of Agriculture and Fisheries, 10, Whitehall Place, London, S. W. 1.

A charge of one shilling is made for each certificate issued. (*The Gardeners' Chronicle*, London, 1927, vol. LXXXII, no. 2125, p. 222).

Brazil (1). — By Law of 21 July, 1927 and in furtherance of the objects of Art. 31 of the plant health control Regulation approved by Decree No. 15,189 of 21 December, 1921, the State of Parahyba do Norte has been declared a zone infested by *Cerococcus parahybensis* Hempel, a scale parasite of coffee, commonly known as "vermelho".

In the manner indicated by Art. 32 of the above Regulation exportation from this State into every other State in Brazil both by sea and by land has been prohibited, not only of whole plants and of other living parts of the coffee plant but also of every other plant capable of acting as carrier of the scale.

Belgian Congo (2). — I. The Governor General has established by Ordinance of 25 March, 1927, a regulation relating to the control of insects and cryptogamic parasites on certain annual and biennial plants. This regulation stipulates in the first place that the competent Services may, with the object of preventing infection, order the immediate destruction, by means which they prescribe, of standing crops, crop products or remains of crops attacked by disease or by insects which cannot otherwise be controlled.

(1) Communication from the official correspondent to the Institute, Dr. Carlos MOREIRA, Director of the "Instituto Biologico de Defesa Agricola" of the Ministry of Agriculture, Industry and Commerce, Rio de Janeiro.

(2) Communication from the official correspondent to the Institute, Dr. Pierre STANER, Director of the Mycological Laboratory at Fala.

II. To limit the invasion of the banana borer (*Cosmopolites sordidus*), which seems to be threatening all the banana plantations, three Ordinances were issued, the first on the 26th May, 1922 by the Governor of the Province of Congo-Kasaï, the second on the 29th March, 1926, by the Governor of the Eastern Province, the third on the 14th January, 1927 by the Governor of the Equatorial Province.

These Ordinances prohibit the importation and transit in the said Provinces of young plants, shoots, bulbs, stems or parts of stems of bananas coming from places where the beetle has been noted as well as from Colonies bordering on these regions.

III. An Ordinance of 31 December, 1921 issued by the Governor of Congo-Kasaï and another of 24 April, 1922 issued by the Governor of the Eastern Province, interdict the importation of citrus fruits and of potatoes coming from the Province of Katanga.

IV. To protect cotton crops from the attack of insects or cryptogamic parasites, the Governor General, by Decree of 1 August, 1921, orders cotton planters :—

(1). to destroy on their lands and on vacant lands within 500 metres of these lands, all wild cotton plants, whether self-sown or ratoon plants, and to do so before the growing period of the planted lands.

(2). to top and destroy on the lands the cotton bushes, bolls and remains of cotton plants attacked by diseases or insects.

(3). to destroy by fire after the harvest all cultivated cotton plants existing on these lands and to collect and burn the cotton bolls lying on these lands.

V. An Ordinance made by the Governor General on 1 May, 1923 regulates the importation of cotton by prohibiting the introduction of cotton seed, of unginned cotton and of raw ginned cotton coming from the Sudan, French Equatorial Africa, Uganda, Kenya, Northern Rhodesia, the Territories of Ruanda-Urundi or Tanganyika Territory.

French Indochina. — By virtue of the Governor General's Decree of 1 July, 1927, touching the reorganization of the Agronomic Research Institute of Indochina, the branches of this Institute which are concerned with the territories of Cambodia, Cochin China and South Annam are grouped in one section called the "Section Sud-indochinoise" with headquarters at Saigon. Those concerned with the territories of North Annam, Laos and Tong-King form the "Section Nord-indochinoise", with headquarters at Hanoi. The two sections also include a Phytopathological Division, while the former also comprises a Genetics and a Plant Quarantine Division.

The Agronomic Research Institute is placed under the technical and scientific control of the "Institut National d'Agronomie Coloniale en France". Its relations with the latter, particularly in the matter of plant health control regulations, are governed by the Decrees and Instructions of the Minister for the Colonies. (*Journal officiel de l'Indochine française*, Hanoi, 6 juillet 1927, 39^{ème} année, n° 54, p. 1879-1880).

* * In virtue of a Decree of the Governor General of 1 July, 1927, the Plant Sanitary Control Service in Indochina has the following duties :—

(1) The investigation of plant diseases and insect pests and the study of the means of control ;

(2) The application as regards both imports and exports and also within the country itself of the regulations of plant sanitary control.

The importation and exportation of plants and accompanying soils and transport materials referred to in the regulations for plant sanitary control can be carried out at ports actually nominated by Decree of the Governor General.

In each of these ports effect is given to the sanitary control regulations by the following means :—

(a) The Entomological and Phytopathological Laboratories belonging to the Institute for Agricultural Research in Indochina ;

(b) Disinfection Centres and Quarantine Stations attached either to the Institute or to a local Agricultural Service.

The work is under the supervision of a Phytopathological Inspector who has under his charge the Entomological and Phytopathological Laboratories at the Institute and is directly responsible for the Disinfection Centres and Quarantine Stations.

An authorization for the entry into Indochina or for the delivery from the Disinfection Centres or Quarantine Stations is not regarded as valid unless accompanied by a bill of health issued by the Phytopathological Inspector. This Inspector is alone authorized to grant similar certificates in the case of exportation.

The internal sanitary Service is arranged as follows :—

(1) The carrying out of all rules relating to the investigation of plant diseases and insect pests, the organization of the means of control and the application of the regulations for plant sanitary control are entrusted to Phytopathological Officers specially appointed for the countries of Indochina and attached to the Agricultural Services.

This staff has the assistance of the Entomological and Phytopathological Laboratories of the Institute for Agricultural Research for all studies and investigations of a scientific character.

(2) The supervision of plant sanitary control is entrusted to the Phytopathological Inspectors attached to the Institute of Agricultural Research.

Each Inspector exercises his control for the area of a sanitary division as shown in the Order of the Governor General and under the following conditions :—

(a) The Inspector is responsible, acting permanently on behalf of the Inspector General of Agriculture, Stock Breeding and Forestry for the technical and vocational supervision of the Phytopathological Officers and also for the supervision of the application of the regulations for plant sanitary control.

(b) He collects all the notices, information and reports relating to the sanitary conditions of the crops.

The Inspectors and Phytopathological Officers are recruited from the

staff of the technical and scientific Agricultural Services in Indochina, after having completed a probationary period of at least six months in the specialised Laboratories of the Ministry of Agriculture or of the National Institute of Colonial Agriculture in France. They are nominated by the Governor General and are alone competent to give effect to the regulations for plant sanitary control.

They may be called on by order of the Governor General to serve temporarily outside the country to which they are assigned, should circumstances require.

The Disinfection Centres and Quarantine Stations are established by Orders of the Governor General. Their internal regulations are arranged by the General Inspector of Agriculture, Stock Breeding and Forestry. (*Journal officiel de l'Indochine française*, Hanoi, 6 juillet 1927, 39^{ème} année, n° 54, p. 1880-1881).

* * In virtue of an order of the Governor General of 1 July, 1927 the port of Saigon is now open for the importation and exportation of plants, soils and transport materials referred to in the regulations for Plant Sanitary Control.

The application of these regulations to imports and exports will be carried out as follows:—

(1) The Entomological and Phytopathological Laboratories of the Institute of Agricultural Research at Saigon are made responsible for all the details of the sanitary inspection of plants, soils and transport materials referred to in the regulations ;

(2) a disinfection centre is attached to the Institute ;

(3) the Station of Giaray is made a plant quarantine station.

The sanitary section controlled by the Phytopathological Inspector attached to the Institute of Agricultural Research at Saigon includes the countries of Cochin-China and Cambodia and also the districts under the control of the Residences at Phan-thiét, Phan-ri, Phan-rang, Nha-trang, Dalat, Banmethuot and Kontum in the country of Annam. (*Journal officiel de l'Indochine française* Hanoi, 6 juillet 1927, 39^{ème} année, n° 54, p. 1881).

Italy. — By virtue of Royal Decree, No. 1415, of 5 August, 1927, relating to easements in the conditions and rates in force on the State railways, the percentage increase has been reduced to 350 % for the following named articles : anticryptogamic, antiphylloxera and antimildew preparations, cupric sulphur. (*Gazzetta ufficiale del Regno d'Italia*, Roma, 16 agosto 1927, anno 689, n. 188, pp. 3321-3322).

* * Following the presence of grape phylloxera [*Phylloxera vastatrix*] which has been determined in the Commune of Cupramontana in the Province of Ancona, a Decree of 31 August, 1927 has extended to the territory of the above Commune the rules contained in arts. 10-14 of Regula-

tion, No. 1099, of 13 June, 1918, relating to the exportation of such materials as are indicated in nos. 1, 2, 3 and 4 of art. 10 of the same Regulation. (*Gazzetta ufficiale del Regno d'Italia*, Roma, 5 settembre 1927, anno 68º, n. 205, p. 3620).

* * In consequence of the presence of grape phylloxera [*Phylloxera vastatrix*] which has been determined in the Communes of Castelvecchio Subequo and of Castel di Jeri, in the province of Aquila degli Abruzzi, a Decree of 31 August, 1927, has extended to the territories of the above Communes the rules contained in arts. 10-14 of Regulation, No. 1099, of 13 June, 1918, relating to the exportation of such materials as are indicated in nos. 1, 2, 3 and 4 of art. 10 of the same Regulation. (*Gazzetta ufficiale del Regno d'Italia*, Roma, 9 settembre 1927, anno 68º, n. 209, p. 3707).

RECENT BIBLIOGRAPHY

Appel, OTTO. Forderungen und Aussichten der angewandten Botanik. *Berichte der Deutschen Botanischen Gesellschaft*, Berlin-Dahlem, 1927, Bd. XLIV, Jahrg. 1926, S. (65)-(80).

[Deals in detail with phytopathological questions].

Azanza Azcona, A. La apoplejía de la viña y su tratamiento. *El Progreso Agrícola y Pecuario*, Madrid, 1927, año XXXIII, núm. 1.478, págs.222-223, 1fig.

Babcock, KENNETH W. The European corn borer *Pyrausta nubilalis* Hubn.: I. A discussion of its dormant period. *Ecology*, Brooklyn, N. Y., 1927, vol.VIII, no.1, pp.45-59.

Bajo, FEDERICO. La «lagarta» como plaga de los frutales. *La Revista Vinícola y de Agricultura*, Zaragoza, 1927, año XI, núm.6, págs.85-86.

[*Liparis dispar*].

Barbey, A. La fidonie du pin combattue à l'aide de l'avion. *Revue des Eaux et Forêts*, Paris, 1927, tome LXV, nº3, p.109-111, 2pl.

[*Fidonia pinaria* L.].

Basinger, A. J. The eradication campaign against the white snail (*Helix pisana*) at La Jolla, California. *Monthly Bulletin of the Department of Agriculture, State of California*, Sacramento, California, 1927, vol.XVI, no.2, pp.51-77, fig.9-31.

Bodenheimer, F. S. Ein Befall von *Eucetia buoliana* var. *thurificana* Led. in Pinienbeständen des Karmel (Palästina). *Zeitschrift für angewandte Entomologie*, Berlin, 1927, Bd.XII, Heft3, S.473-483, Abb.1-4.

Brouwer. Landwirtschaftliche Samenkunde. Ein Schlüssel zum Bestimmen der feinkörnigen Kulturpflanzen sowie der wichtigsten Unkrautpflanzen. Neudamm, J. Neumann, 1927. 130S., 2Textabb., 14Taf.

Brunet R. La lutte contre l'altise. *La Vie Agricole et Rurale*, Paris, 1927, 16^e année, t. XXX, n^o 23, p. 364, 3 fig.

[*Haltica ampelophaga*].

Caldis, PANOS D. Etiology and transmission of endosepsis (internal rot) of the fruit of the fig. *Hilgardia*, Berkeley, California, 1927, vol. 2, no. 7, pp. 287-328, fig. 1-3, pl. 1-16.

[*Fusarium moniliforme* Sheldon var. *Fici* n. var.].

Carimini, MARIO. Difesa contro la mosca delle frutta. *Il Lavoro d'Italia Agricola*, Roma, 1927, anno I, n. 22, p. 4.

[*Ceratitis capitata*].

Colley, REGINALD H., Hartley, CARL and Taylor, MINNIE W. A morphologic and biometric comparison of *Cronarium vibicola* and *Cronarium occidentale* in the aecial stage. *Journal of Agricultural Research*, Washington, D. C., 1927, vol. 34, no. 6, pp. 511-531, fig. 1-5.

Chittenden, F. H. The Florida potato plant-bug. *The Quarterly Bulletin of the State Plant Board of Florida*, Gainesville, Florida, 1927, vol. XI, no. 3, pp. 115-118, fig. 1-2.

[*Coreocoris diffusus* Say].

Criddle, NORMANN. Lepidoptera reared in Manitoba from poison ivy. *The Canadian Entomologist*, Orillia, 1927, vol. LIX, no. 5, pp. 99-111.

[*Paectes oculatrix* Guer., *Epipaschia zelleri* Grt., *Epistmus argutus* Clem., *Cacoecia argyrosphila* Walk., *Lithocolletis guttifinitella* Clem. and *Gracilaria rhoisoliella* Cham., reared from *Rhus Toxicodendron*].

Cook, H. H. Fleaworm disease of Chrysanthemums. *The Gardeners' Chronicle*, London, 1927, vol. LXXXI (third series), no. 2111, p. 415, fig. 203.

[*Aphelenchus ritzema-bosi* ?].

Cook, MELVILLE T. Relationship of cane varieties to diseases. *The Planter and Sugar Manufacturer*, New Orleans, 1927, vol. LXXXVIII, no. 18, pp. 352-353.

Dastur, JEHANGIR FARDUNJI. A short note on the foot-rot disease of *pan* in the Central Provinces. *The Agricultural Journal of India*, Calcutta, 1927, vol. XXXII, part II, pp. 105-108.

[*Phytophthora parasitica* on *Piper Betel*].

de Laval, J. A. El « pasmo » del algodón en el valle de Ica. *Boletín de la Compañía Administradora del Guano*, Lima, Peru, 1927, vol. III, no. 1, págs. 3-11, figs. 1-3.

[« Pasma » or checked development of the cotton bolls can be attributed to pathological causes (*Homalodisca triquetra* Fabr., *Dysdercus suturellus*, *Calocoris rapidus*, *Glomerella Gossypii*, *Bacillus gossypinus*, *Colletotrichum Gossypii*, *Fusarium*, *Alternaria*, *Rhinotrichum macrosporum*, *Anthonomus vestitus*, etc.), but also to physiological causes such as sudden changes in temperature raising of the soils water level].

Dillon Weston, W. A. R. The incidence and intensity of *Puccinia glumarum* Eriks. and Henn., on wheat infected and non-infected with *Tilletia tritici* Winter, showing an apparent relationship between the susceptibility of wheat plants to yellow rust and to bunt. *The Annals of Applied Biology*, London, 1927, vol. XIV, no. 1, pp. 105-112, diagram 1.

Di Tocco, ROBERTO. Bibliografia del filugello (*Bombyx mori* L.) e del gelso (*Morus alba* L.) compilata nella R. Stazione Bacologica Sperimentale - Padova per cura del Dott. . . . Ente Nazionale Serico-Milano. Padova, C. E. D. A. M., Casa Editrice Dott. A. Milani (già Litotipo), 1927, XXI, II-262 pp.

[Italian and foreign studies after 1856 on the diseases and pests of the mulberry tree are included].

Drechsler, CHARLES. Two water molds causing tomato rootlet injury. *Journal of Agricultural Research*, Washington, D. C., 1927, vol. 34, no. 3, pp. 287-296, fig. 1-2.

[*Aphanomyces euteiches* Drech., *Plectospora myriantra* n. gen. and n. sp.].

Dukelsky, N. Notices sur les rongeurs nuisibles à Bokhara. *La Défense des Plantes*, Ieningrad, 1927, vol. IV, n^o 1, p. 59-61.

[Russian with French title].

Dunnam, E. W. Notes on the life history and control of the strawberry leaf roller. *Journal of Agricultural Research*, Washington, D. C., 1927, vol. 34, no. 2, pp. 149-156, fig. 1-3.

[*Ancyliis complana* Fröhl.].

Durand, A. Le traitement du mildiou. *La Vie Agricole et Rurale*, Paris, 1927, 16^e année, t. XXX, n^o 23, p. 368.

[*Plasmopara viticola*].

Engelhardt, V. Sur les Lamellicornes nuisibles dans l'agriculture de l'Extrême Orient. *La Défense des Plantes*, Leningrad, 1927, vol.IV, n°1, p.4-9, fig. 1-3.

[Russian with French title].

Erotokritos, I. Cereal disease « Sirividi » (*Oecophora temperatella*). *The Cyprus Agricultural Journal*, Nicosia, Cyprus, 1927, vol.XXII, part2, p.45.

Escherich, K. Die Bekämpfung des Kaffeeborkenkäfers in Staate São Paulo. *Zeitschrift für angewandte Entomologie*, Berlin, 1927, Bd.XII, Heft3, S.493-498, Abb.1-4.

[*Stephanoderes coffeae* Hag].

Esdorn, ILSE. Ueber die Prüfung von Beizmitteln. *Pflanzenbau*, Berlin, 1927, 3.Jahrg.1926/27 Nr.17, S.276.

Ferraris, T. Le ruggini del pero e del cotogno. *Curiamo le Pianta e La Difesa delle Pianta contro le Malattie ed i Parassiti*, Alba, 1927, annoIV e XXII, n.5, pp.91-95, figg.1-2, tav.V.

[*Gymnosporangium Sabinae*, *Gymn. confusum*].

Fischer, W. Die Notwendigkeit der Schaffung eines zwischenstaatlichen Kartoffelkrebssabkommens. *Deutsche Landwirtschaftliche Presse*, Berlin, 1927, 54.Jahrg., Nr.10, S.131-132.

Friederichs, K. Die Bedeutung der Biocönos für den Pflanzenschutz gegen Tiere. *Zeitschrift für angewandte Entomologie*, Berlin, 1927, Bd.XII, Heft3, S.385-411.

Froggatt, WALTER W. Forest insects, No. 29. The bubble leaf gall thrips (*Kladothrips* sp.). *The Australian Forestry Journal*, Sydney, 1927, vol.X, no.1, pp.5-7, 1fig.

Fulton, HARRY R. and Bowman, JOHN J. Effect of spraying with fungicides on the keeping quality of Florida citrus fruits. *United States Department of Agriculture, Department Circular* 409, Washington, D. C., 1927, 13pp., 5figs.

Gasser. Die Taschenkrankheit bei den Zwetschgen, deren Ursache und

Bekämpfung. *Schweizerische Obst- und Gartenbau-Zeitung*, Münsingen, 1927, Nr.11, S.190-191, 1Abb.

[*Taphrina Pruni*].

Gimingham, C. T. A parasite of grain weevils. *Journal of the Institute of Brewing*, London, 1927, vol.XXXIII, no.4, pp.241-242.

[*Lariophagus distinguendus* Parasite of *Calandra granaria* and *C. oryzae*].

Gioelli, FELICE. Sopra un caso di flusso mucoso riscontrato su aceri e ippocastani. *Rivista di Patologia Vegetale*, Pavia, 1927, anno XVII, nn.5-6, pp.109-114, 1fig.

[The cause of the deterioration is not yet determined].

Greger, JUSTIN. Mikroskopie der landwirtschaftlichen Unkrautsamen. Mit besonderer Berücksichtigung der Frucht- und Samenschale. Berlin, Paul Parey, 1927, VII-117S., 106Text-abb.

Lecomte, H. Sur le *Viscum Perrieri* H. Lec., de Madagascar. *Bulletin du Muséum National d'Histoire Naturelle*, Paris, 1927, année 1927, n°1, p.99-101, fig.1-14.

Safro, V. I. Adapting fumigation procedures to industrial needs. *Journal of Economic Entomology*, Geneva, N. Y., 1927, vol.20, no.2, pp.261-266.

Salmon, E. S. and Ware, W. M. Leaf scorch of *Azalea*. A new fungous disease. *The Gardeners' Chronicle*, London, 1927, vol. LXXXI, third series, no.2104, pp.286-288, fig.139-143.

[*Septoria Azaleae* Vogl. found on azalea imported into England].

Salmon, E. S. and Ware, W. M. Root rot of *Richardia* (*Richardia* = *Calla* and *Arum*). A new fungous disease. *The Gardeners' Chronicle*, London, 1927, vol.LXXXI, third series, no.2101, pp.234-235, fig.116-119.

[*Phytophthora Richardiae* Buisman, new to England].

Salmon, E. S. and Ware, W. M. The downy mildew of the hop in 1926. *The Journal of the Ministry of Agriculture*, London, 1927, vol.XXXIII, no.12, pp.1108-1121, fig.1-5.

[*Pseudoperonospora Humuli*].

Salter, ROBT. M. and Thatcher, L. E. Agronomic research on the European corn borer in Ohio. *Journal of the American Society of Agronomy*, Geneva, N. Y., 1927, vol. 19, no. 2, pp. 137-153, fig. 1-7.

[*Pyrausta nubilalis*].

Samuel, GEOFFREY. On the shot-hole disease caused by *Glasterosporium carpophilum* and on the «shot-hole» effect. *Annals of Botany*, London, 1927, vol. XLI, no. CLXII, pp. 375-404, fig. 1-18, pl. XVII-XVIII.

Schander, Stolze und Rothmaler. Beiträge zur Frage der Trockenbeizung und zur Methodik der Untersuchung von Trockenbeizmitteln. *Pflanzenbau*, Berlin, 1927, 3. Jahrg. 1926/27, Nr. 6, S. 241-260, Abb. 1-10.

Schmidt, PAUL. Der kleine Frostnachtspanner. *Schweizerische Obst- und Gartenbau-Zeitung*. Münsingen, 1927, 29. Jahrg. - 40. Jahrg., Nr. 7, S. 111-112, 1 Abb.

[*Cheimatobia brumata* L.]

Schoevers, T. A. C. International Committee of Phytopathology and Economic Entomology. Report of the Secretary. 1 January 1925-1 May 1927. Editor: T. A. C. SCHOEVERS, Secretary of the Committee Wageningen, H. Veenman and Sons, 1927, 8 pp.

Schwarz, M. BEATRICE Preliminary results of a rotation test in connection with slime disease (*Bacterium solanacearum*). *Landbouw, Buitenzorg*, 1927, II jaarg, no. 7, blz. 576-586, fig. 1-3, tabel I-II.

[In Dutch, with title and summary in English].

Sherbakoff, C. A. A modified method of delinting cotton seed with sulphuric acid. *Phytopathology*, Lancaster, Pa., 1927, vol. 17, no. 3, pp. 189-193.

Siegler, F. H. and Brown, LUTHER. Can baits be used in scouting for injurious insects? *Journal of Economic Entomology*, Geneva, N. Y., 1927, vol. 20, no. 2, p. 428-429.

[*Carpocapsa pomonella* L., *Laspeyresia molesta* Busck].

Small, W. Mycological notes. Further notes on *Rhizoctonia bataticola*

(Taub.) Buttler. *The Tropical Agriculturist*, Colombo, 1927, vol. LXVIII, no. 2, pp. 73-75, 1 pl.

Smolák, JAR. Résultats de la désinfection des semences avec des désinfectants secs. *Věstník Československé Akademie Zemedelské*, Praha, 1927, Duben 1927, Ročník III, Císlo 4, str. 441-443.

[Against «stinking smut» of wheat. In Czech, title also in French; summary in French, English and German].

Snapp, OLIVER I. Spraying and dusting program for Southeast. *American Fruit Grower Magazine*, Chicago, Ill., 1927, vol. XLVII, no. 2, pp. 34-35.

Southwell, H. Virus diseases of potatoes and the raising of seed potatoes in the Irish Free State. *The Journal of the Ministry of Agriculture*, London, 1927, vol. XXXIV, no. 1, pp. 19-25.

Stahl, C. F. A preliminary report on a grass-root mealybug (*Ripersia radicolica* Morrison) affecting sugar cane in Cuba. *Journal of Economic Entomology*, Geneva, N. Y., 1927, vol. 20, no. 2, pp. 392-399, fig. 18, pl. 13.

Szymanek, J. Quelques observations sur la morphologie du mycélium et des suçoirs du *Phytophthora infestans* dans le tubercule de pomme de terre. *Comptes rendus hebdomadaires des séances de l'Académie des Sciences*, Paris, 1927, tome 184, n° 10, p. 620-622, fig. 1-5.

Talbert, T. J. Spray calendar for the Middle West. *American Fruit Grower Magazine*, Chicago, Ill., 1927, vol. XLVII, no. 2, p. 14.

Tate, P. On *Ectomyces Calotermi* n. sp., an Ascomycete parasitic on *Calotermes samoanus* Holmgren (*Isoptera*, *Protermitidae*). *Parasitology*, London, 1927, vol. 19, no. 1, pp. 54-60, fig. 1, pl. II.

Thompson, W. R. and Parker, H. L. The problem of host relations with special reference to entomophagous parasites. *Parasitology*, London, 1927, vol. 19, no. 1, pp. 1-34.

Tisdale, W. H., Leighty, C. E. and Boerner, E. G. A study of the distribution of *Tilletia tritici* and *T.*

laevis in 1926. *Phytopathology*, Lancaster, Pa., 1927, vol. 17, no. 3, pp. 167-174, fig. 1.

[In the United States of America].

Trotter, A. Sulla presenza della «*Lasioidiplodia tubericola*» Ell. et Eyr. in Egitto («*Java Black-Rot*») e sul pericolo della sua introduzione in Italia. *Bollettino della R. Stazione di Patologia vegetale* [di Roma], Firenze, 1927, anno VII, nuova ser., n. 1, pp. 93-98, figg. 1-4.

[*L. tubericola* has been found at the Customs of Naples on tubers of sweet potatoes (*Ipomoea Batatas* Poir.) coming from Egypt].

Truelle, A. La destruction de l'hyponomeute du pommier. *La Vie Agricole et Rurale*, Paris, 1927, 16^e année, t. XXX, n° 16, p. 253-255, 2 fig.

[*Hyponomeuta malinellus*].

United States Bureau of Entomology and Plant Industry. Oil emulsions for scale on peach trees. *American Fruit Grower Magazine*, Chicago, Ill., 1927, vol. XLVII, no. 2, p. 17.

[*Aspidiotus perniciosus*].

Vergnano, C. Necessità della lotta contro la tignuola dell'uva. *L'Agricoltura d'Italia*, Roma, 1927, anno VI, n. ser., n. 19, p. 2.

[*Conchylis ambigua*].

Vielwerth, VI. Résultats de la désinfection des semences en Slovaquie. *Věstník Československé Akademie Zemědělské*, Praha, 1927, Duben 1927, Ročník III, Císlo 4, str. 443-445.

[Against «stinking smut» of wheat in Czech, title also in French; summary in French, English and German].

v. Soó, RALPH. The *Melampyrum* species of East Asia. *The Journal of Botany British and Foreign*, London, 1927, vol. LXV, no. 773, pp. 138-145.

[Are given, among others, the Latin diagnosis of *M. aristatum* Soó comb. nov., *M. Henryanum* Soó comb. nov., *M. Klebsbergianum* Soó sp. nov., *M. japonicum* Soó comb. nov.].

Vyshelessky, N. Sodium arsenite as insecticide. *La Défense des Plantes*, Leningrad, 1927, vol. III, no. 6, pp. 462-467.

[In Russian, with title and summary in English].

Vyshelessky, N. On the behaviour of locusts amidst the dusted plants. *La Défense des Plantes*, Leningrad, 1927, vol. III, no. 6, p. 533.

[In Russian, with title and summary in English].

Vyshelessky, N. Experiences on the adhesive property of insecticides and their admixtures. *La Défense des Plantes*, Leningrad, 1927, vol. III, no. 6, pp. 534-536.

[In Russian, with title and summary in English].

Wille, F. Untersuchungen über die Beziehungen zwischen Immunität und Reaktion des Zellsaftes. *Zeitschrift für Pflanzenkrankheiten u. Pflanzenschutz*, Stuttgart, 1927, XXXVII. Bd., Heft 5/6, S. 129-158, Abb. 1-3.

Wilson, MALCOLM. Defoliation of the Douglas fir. *The Gardeners' Chronicle*, London, 1927, vol. LXXXI, third series, no. 2106, pp. 323-324.

[*Rhabdocline Pseudotsugae* is indicated as agent of the disease; it had already been observed in Scotland and has recently been found in England (Hampshire)].

NOTES

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